



memorandum

CHEMISTRY

Chemistry Division

To/MS: Mark McCleskey, C-DO, MS J515
Nancy N. Sauer, ADCLES, MS F629

From/MS: Christopher Leibman, C-CDE, MS J964

Phone/Fax: 7-4457/Fax 5-4355

Symbol: C-DO-14-035

Date: May 08, 2014

SUBJECT: TA-54 DRUM HEADSPACE RESULTS

The following is a summary of the results of the 25 drum samples submitted for analysis (15 treated with absorbents, 10 untreated).

The samples were analyzed for Volatile Organic Compounds (VOCs) by Gas Chromatography/Mass Spectrometry (GC-MS). Analysis was also performed via GC with a Thermal Conductivity Detector (GC-TCD). The balance gas for each analysis is air, as nitrogen/oxygen.

The VOC analyses exhibited nothing unusual, as far as compounds detected and their concentrations. There were no VOC compounds detected at levels above 1 ppm. The VOC's detected were below 1 ppm and generally characteristic of TRU waste. The compounds detected in the majority of the samples were short chained (C-5 to C-8) hydrocarbons. Most of the samples also contained toluene. Some samples (S802701, S805051, S813355) also contained benzene and tetrachloroethene. One sample, 69488, contained benzene, toluene and xylenes. Samples S805589 and S818435 contained benzene and toluene.

The fifteen treated drums identifications are those with digits only, the ten untreated have identifications that start with "S".

It is noteworthy that the many of the samples contained above atmospheric concentrations of carbon monoxide, carbon dioxide, and nitrous oxide. Some of the samples exhibited quite elevated levels of carbon dioxide.

DVM:yjh

Cy: Stark, Pete, J964
C-CDE File, 964

Symbol

Date

- 2 -

Sample ID	Sample Date	Hydrogen Concentration ppm	Carbon monoxide Concentration ppm	Carbon dioxide Concentration ppm	Nitrous oxide Concentration ppm
94068	7.25.13	1160	5000*	60000*	14000*
69559	3.17.14	440	1700	16000*	1800
69568	3.18.14	200	710	3200*	1600
69036	12.6.13	160	360	4100*	330
69298	1.26.14	1300	2500*	37000*	2400*
68624	11.12.13	70	Not Detected	2900*	270
* 68488	10.2.13	140	C1H01 - not nitrate	330	130
68681	1.16.14	30**	Not Detected	5600*	810
69445	2.29.14	460	1650	15000*	110
69417	2.27.14	Not Detected	Not Detected	2400*	Not Detected
69635	4.18.14	320	640	400	370
69618	4.17.14	Not Detected	340	5900*	340
69615	4.17.14	320	1600	900	1400
69548	4.24.14	20**	Not Detected	340	Not Detected
69634	4.24.14	260	280	52000*	1130
S825879		390	480	4200*	1400
S818435		80	180	3700*	300
S816434		50	160	1200	300
S813389		150	250	1100	500
S813385		370	200	3000*	3800*
S805289		80	Not Detected	6500*	560
S805051		Not Detected	Not Detected	2100*	Not Detected
S803078		150	130	1100	830
S805995		40**	Not Detected	3100*	340
S802701		40**	70	1300	200

(*) Amount of the gas species detected is above the concentration of the standard.

(**) Amount of the gas species detected is below the instrument calibrated range (<50 ppm)